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SYNOPSIS OF LEPIDOPHORUS (COLEOPTERA, CURCULIONIDAE).

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The present paper is largely an outgrowth of work done on the identification of specimens received from Mr. W. W. Baker, of the Division of Truck Crop and Garden Insect Investigations, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture.

Lepidophorus Kirby (*Lophalophus* Leconte, new synonym).

Lepidophorus is monobasic, established for *L. lineaticollis* Kby.; *Lophalophus* is monobasic, for *Liophloeus inquinatus* Mann. *Lophalophus* cannot very well be maintained unless *Lepidophorus* be divided into a number of subgenera, one of them *Lophalophus*.

The principal characters of *Lepidophorus* are: Rostrum short and stout; mandibles without scar, prominent and tapering down to a thin distal edge which is often subangulate in front and at sides; scrobe lateral, originating near apex of rostrum, more or less broadly visible from above apically, becoming rapidly shallower posteriorly; scape long, reaching across middle of eye to or slightly beyond its hind margin, first funicular segment considerably longer than second; scutellum small or invisible; elytra with rounded humeri and 10 striae, subapical callus absent (except in *alternatus*); functional wings wanting; second abdominal sternite subequal to or longer than third plus fourth.

These characters are practically duplicated in *Dirotognathus* Horn, a genus placed in the Otiiorhynchinae because of the presence of a mandibular scar. The scar in *Dirotognathus*, though

minute, usually can be detected on at least one mandible, but occasionally it seems to be entirely effaced. Although the two genera probably should be maintained as distinct, there is little doubt that a perfectly natural classification would show them to be closely allied.

In the following key the term "spur" or "tibial spur" is applied to the short, porrect spine, straight or often slightly curved, rising from the lower apical angle of the tibiae near the base of the mucro (or at the normal position of the mucro on the hind tibia of the ♀, where the mucro is obsolete). When present, the spurs are two in number on hind tibia, one on the middle tibia, and one or none on the front tibia. They are sometimes difficult to differentiate from the paler and narrower spinules that fringe the articular surface.

KEY TO SPECIES OF LEPIDOPHORUS

1. Tibiae without spurs; rostrum with one, usually distinct, median carina (sometimes obscured by scales in *rainieri*).

2

At least middle and hind tibiae with spurs; rostrum carinate or not, but never with distinct median carina unaccompanied by lateral carinae 3

2. Length, 6-7 mm. (largest species); elytral scales slender, not entirely concealing derm, often forming brownish and whitish mottlings on disk; fifth sternite of ♀ at most shallowly impressed. Alaska (type locality, Sitka).

inquinatus Mann.

Length, 3.75-4.5 mm. (5 mm., teste Van Dyke); scales above dense, concealing the derm, fuscous on elytra except for some vague, paler blotches on sides and declivity; fifth sternite of ♀ with a deep, rounded impression. Mt. Rainier, Washington (type locality) . . . *rainieri* Van Dyke

3. Anterior tibia without spur; pronotal setae rising from the general system of punctures; elytral scales small and individually distinct; antennal scape setose only, first funicular segment equal to, or longer than, second and third together, club at least twice as long as wide; eye rather large and convex; abdominal scales plumose 4

All tibiae with spurs; pronotal setae, in whole or part, rising from smaller punctures on the intervals between the larger punctures; elytral scales sometimes agglutinated; antennal scape usually setose and squamose; eye smaller, feebly convex; abdominal scales mostly simple (largely seta-like in *setiger*) 5

4. Derm above shining black or piceous; scales above more or less variegated (brownish aeneous to opalescent) and forming pale, sometimes rather vague, lateral stripes on pronotum and a spot on humerus; fringe of scales on fore margin of prothorax not extending across dorsum; ventral edge of ♂ hind tibia angulate or toothed at basal three-sevenths. Idaho and Washington.

angulatus n. sp.

Derm reddish to rufopiceous, the prothorax darker; general color of vestiture brownish, without pale pronotal stripes; pronotal fringe of scales complete; ♂ hind tibia sinuate but not angulate on ventral edge. Colorado.

plumosus n. sp.

5. Even elytral intervals not more prominent than the odd; elytral setae on disk evenly distributed, or sometimes a little more numerous on third and fifth intervals (absent on apical halves of second and fourth in *setiger*) 6
Elytral intervals 2, 4, and 6 more prominent and, on disk, with more setae than the odd intervals; on declivity, the second, and sometimes the fourth also, nearly destitute of setae; pronotal punctures cribrate 9
6. Second and fourth intervals with setae their entire length or rarely nearly lacking them on the declivity; abdominal vestiture largely squamose and usually covering the derm; western and northwestern North America 7
Second interval without setae except at basal third and near apex; fourth interval without setae except in basal half and near apex, rarely with a few between; abdominal vestiture largely hair or seta like and leaving most of derm exposed; eastern part of the United States 10
7. Length, 3.7–5.25 mm., usually at least 4 mm.; feeble ocular lobe usually present; elytral scales individually distinct; elytral setae fine and inconspicuous against the gray or vaguely mottled background; vestiture of antennal scape not forming a scaly crust. Yukon Territory, Canada; Alaska (type locality, "Lat. 65°") ... *lineaticollis* Kirby
Length usually less than 4 mm.; ocular lobe faint or wanting; elytral scales, and sometimes the pronotal also, more or less completely agglutinated; elytral setae stouter and conspicuous against the darker background; antennal scape usually with a scaly crust; south of Alaska 8
8. Length, 3 mm.; dorsal coating dense, the pronotal punctures

- completely covered by an even crust; no rostral carinae visible through the dense scales; fifth sternite of ♀ not impressed; British Columbia *pumilus* n. sp.
- Length, 3.1–4 mm., most specimens at least 3.3 mm.; dorsal coating less dense, the imprints of the pronotal punctures visible beneath the scales; rostral carinae usually visible; fifth sternite of ♀ transversely impressed. . . *bakeri* n. sp.
- a. Elytral intervals subplanate to feebly convex. Washington *bakeri* typical
- b. Elytral intervals more strongly convex. Utah.
- bakeri utensis* n. subsp.
9. Length, 4–5 mm.; rostral carinae subequally developed, often faint, rarely the lateral ones evidently more prominent; prothorax, at least of ♂♂, relatively longer than in the preceding species; groove around upper eye margin finer and shallower than in *setiger*. Washington and Oregon (type locality, Forks, Clallam Co., Washington).
- alternatus* Van Dyke
10. Length, 3.25–4.25 mm.; rostral carinae variable, but frequently the lateral are stronger; prothorax of ♂♂ relatively as long as, or a little longer than, in *alternatus*; a rather deep groove present around upper half of eye margin. New York; Pennsylvania; Maryland; Virginia; West Virginia (type localities, St. Vincent, Pennsylvania; Virginia) *setiger* Hamilton

***Lepidophorus angulatus* n. sp.**

Length, 3.8–4.8 mm.; width, 1.9–2.5 mm. Derm black, antennae and legs rufous, the femora often infusate basally, above not entirely covered by small, subcontiguous but not overlapping scales of variegated hues, the darker ones brownish to cupreous and predominating on disk, the paler or whitish ones often faintly tinged with blue or green and more abundant on humerus, declivity, and sides of elytra and forming a lateral stripe on pronotum; many of the scales with a varnish-like sheen.

Rostrum faintly arcuate, lightly deflexed at apical third, slightly less than half as thick as long, a little shorter than prothorax, above in profile subcontinuous with front in most specimens, basal two-thirds not densely clothed with slender scales and with a few, fine, suberect setae; surface closely punctate and more or less rugose longitudinally, faint lateral

carinae sometimes visible, deflexed apical third thinly setose and more finely punctate; interantennal fovea small and punctiform to larger and elliptic, the surface in front of it often briefly carinate. Eyes separated above by a little less than basal width of beak. Head with dense, slender scales, and usually with a small interocular puncture. Prothorax about one-fifth wider than long, widest at or slightly before middle, base wider than apex (about 5 to 4), sides rather strongly rounded, not constricted apically; pronotum evenly convex, closely punctate, with or without trace of a smooth median line, the pale scales forming the lateral stripes broader and more densely placed than those on disk and, at least in basal half, nearly concealing the derm, scales on disk often coppery, and sometimes quite narrow and sparse, setae slender and subprostrate. Elytra rather strongly convex, declivous toward base on disk, much wider than prothorax, ovoid, the sides feebly rounded and slightly converging posteriorly from behind the obliquely rounded humeri, intervals flat or nearly so, the sutural often feebly elevated on declivity, the scales ovate to rounded, small (3 to 5 in width of an interval); setae fine, inconspicuous, arranged in a somewhat irregular row on each interval, sometimes more numerous on third and fifth; serial punctures closely set, the striae not or feebly impressed. Beneath, including flanks of prothorax, rather densely clothed with dirty white plumose scales; abdominal setae hair-like. Femora sparsely scaly and setose, tibiae setose only and finely denticulate on ventral margin, more strongly so on front pair, the hind pair, ♂, with a broad emargination on inner edge that reaches from lower apical angle to an angulation or tooth at basal three-sevenths. Apex of fifth sternite, ♂, with a short, broad, and feeble, longitudinal impression (little more than a flattening), the surface each side set with fine, suberect pile; a similar, but feebler, modification in female.

Type locality.—Moscow, Idaho, J. M. Aldrich, collector; 2 males and 1 female.

Other locality.—Pullman, Washington, J. F. Clarke, collector, 2-VI-33, Truck Crop No. 4962, 4 females; same locality, O. Edwards, collector, V-3-33, Truck Crop No. 4962, 1 female.

Type.—♂, Cat. No. 50652, U. S. N. M.

In several of the Washington specimens, the prothoracic fringe of minute scales is wanting from abrasion. The plumose scales are

minutely fringed at margins, not deeply split into filaments. The metepisternal suture, though obscured by vestiture, usually can be traced from its apex backward to near the hind coxa.

Lepidophorus plumosus n. sp.

Length, 4.7–5.2 mm.; width, 2.1–2.4 mm. Slightly more slender than usual in the genus, ♀ somewhat stouter in form than ♂; derm dull reddish to piceous, prothorax usually darker; above clothed with small, ovate or oblong, brownish scales and slender setae, with an admixture of some paler scales, the latter usually more numerous toward sides and on declivity of elytra.

Rostrum stout, very feebly arcuate, four-fifths to five-sixths as long as prothorax, not continuous with front in profile, above densely punctate and more or less rugose longitudinally, carinae absent or mere traces of them visible through the usually thin coating of setae and slender scales, apical deflexed area more sparsely setose and less coarsely sculptured, interantennal fovea, when present, sublinear. Eyes as in *angulatus*, convex and separated above by slightly less than basal width of beak; no distinct interocular puncture. Prothorax slightly wider than long, widest before middle, sides rather strongly rounded, not constricted apically; pronotum evenly convex, densely punctate, and with or without trace of a short, smooth, median line, scales on disk slender, the setae, though fine and subprostrate, quite long and conspicuous, the scales toward sides broader and sometimes paler, but not forming evident vittae. Elytra ovoid, disk less convex than in *angulatus*, striae feebly impressed, the punctures closely set, the surface scales small, subcontiguous but not completely covering derm, intervals nearly flat, setae fine, arranged in an irregular single row on even intervals, more numerous and more irregular on odd intervals. Beneath sparsely clothed with inclined hairs, and more densely so with small, plumose scales, the scales on flanks of prothorax narrower, darker in color, and more feebly plumose (some of them apparently simple) than in *angulatus*. Legs clothed about as in *angulatus*, the femoral scales more slender; tibial denticulations somewhat feebler than in *angulatus*. Fifth sternite, ♂ and ♀, slightly flattened apically, the surface each side set with fine, suberect hairs, more evident in ♂.

Type locality.—Garland, Colorado, Hubbard and Schwarz collection; 5 specimens.

Other locality.—Veta Pass, Colorado, Hubbard and Schwarz and C. V. Riley collections; 3 specimens. "Col.," 2 specimens from Chittenden collection.

Type.—♂, Cat. No. 50654, U. S. N. M.

Though structurally similar to *angulatus*, this species has a quite different habitus due to its more slender form, and darker, more nearly uniform color of scales, lack of pronotal vittae, and the longer, finer and more conspicuous elytral setae. In *angulatus* the sutural interval on the declivity is often slightly but distinctly elevated, not perceptibly so here. The metepisternal suture is a rather coarse groove extending from its apex backward three-fourths to five-sixths the distance to the hind coxa. Because of the sparser scales, the suture is usually more distinct than in *angulatus*. A single female from New Mexico with still longer elytral setae is probably subspecifically distinct.

Lepidophorus pumilus n. sp.

Length, 3 mm.; width, 1.58 mm. Derm above covered by a crust of dirty brown, agglutinated scales, unrelieved by discal markings. Scales on head and rostrum slightly, those beneath distinctly, paler. Pronotum feebly and evenly convex, the outlines of the underlying punctures not visible. Elytral setae yellowish or golden, short but conspicuous against the dark background, and forming a single regular row on each interval.

Rostrum stout, very feebly arcuate, a little shorter than prothorax, upper surface densely scaly in basal three-fourths and with relatively coarse, suberect setae which form two irregular longitudinal rows each side of middle, the setae more crowded above eye; apical fourth roughly punctate, sparsely setose. Anteriorly, the upper edges of the scrobes are carina-like and slightly but distinctly elevated above the upper rostral surface, the edges of scrobes, as seen from above, rather abruptly bent outward above the antennal socket, then subparallel the short distance to apex; scape scaly and setose, first funicular segment a little shorter than the second plus third, fourth to seventh transverse, the seventh strongly so. Head without setae, the scales small, dense, striated; interocular puncture not visible. Eyes small, feebly convex, separated above by about three-fourths basal width of rostrum. Prothorax about as long as wide or distinctly wider than long, sides rather strongly

and evenly rounded, widest point median or slightly ante-median, pronotum with relatively long, backwardly directed, subrecumbent, brownish-yellow setae. Elytra considerably broader than prothorax, intervals flat, the striae narrow and finely and indistinctly punctate. Beneath sparsely setose and densely scaly; fifth sternite of female somewhat flattened, but not impressed, apically. (♂ unknown.)

Type locality.—Nicola, British Columbia, Canada, 3,800 feet, 21-IX-1932, G. J. Spencer, on *Achillea lanulosa*, 1 specimen.

Other locality.—Midday Valley, Merritt, British Columbia, Canada, V-28-1925, J. Stanley, on *Pinus ponderosa*, 2 specimens.

Type.—♀, Cat. No. 50655, U. S. N. M.

In the type specimen the prothorax is relatively longer than in the paratypes. The small size, relatively coarse rostral setae, completely obscured pronotal punctures, fine striae punctures, and nonimpressed fifth sternite of the ♀ seem characteristic.

Lepidophorus bakeri n. sp.

Length, 3.1-3.9 mm.; width, 1.5-2.1 mm. Derm rufopiceous to black, densely clothed with striated scales, the scales above dull aeneous-brown to fuscous, clean specimens with pale lateral and median pronotal stripes (the stripes often interrupted), and irregular pale mottlings on elytra, the pale areas of variable extent and rarely expanded over most of elytra, the pale scales above and below sometimes with more or less distinct opalescent tinge. Elytral setae distinct, forming a single row on each interval.

Rostrum nearly straight basally, deflected downward apically, half as thick as long, somewhat shorter than prothorax, upper surface subplanate, virtually continuous with front in profile, apical fourth setose, rest of surface densely clothed with broad scales and backwardly inclined setae, the scales brownish to cinereous, the setae usually more numerous above eye; middle half of length with a lateral, and often a median, carina showing through the vestiture, the median carina forked anteriorly to enclose the triangular to fusiform interantennal fossa; apical region rugosely punctate. Scape reaching a little past hind margin of eye at middle, first funicular segment about equal to second plus third, the fifth and sixth, and sometimes the fourth, submoniliform, the seventh broader and strongly transverse, club somewhat less than twice as long as wide. Eyes small, very feebly convex, separated above by

about two-thirds basal width of beak. Scales on head narrower than on rostrum, more closely appressed and frequently with a pale greenish, varnish-like sheen; setae wanting; interocular puncture not visible. Prothorax somewhat wider than long as a rule, but virtually as long as wide in some ♂♂, widest at or in front of middle, sides rather strongly rounded, not or faintly constricted toward apex; pronotum moderately convex, densely punctate, densely clothed with appressed scales and subprostrate setae, the latter posteriorly directed in general but, on anterior margin, transversely directed and more nearly erect, absent along a narrow median line, the pale scales on the lateral stripes, and to some extent on the median stripe also, flat, covering surface, and individually distinct, those on rest of disk darker, more or less agglutinated, and so closely appressed to the surface contours that the puncture pits are plainly visible. Elytra about one-half wider than prothorax, humeri rounded, sides nearly straight and slightly converging backward, striae punctures distinct, intervals nearly flat to feebly convex, often more convex basally, apically and laterally, each with a regular row of setae, those on dorsum strongly inclined, those on declivity more nearly erect, the setae on second interval on declivity sometimes sparser, those toward base of third and fifth sometimes more abundant; scaly covering more or less agglutinated though, on clean specimens, some of the scales are individually distinct. Beneath and legs setose and densely scaly, the vestiture finer and sparser on fifth sternite, derm of abdomen and legs often reddish; abdomen, ♂, broadly and feebly impressed basally, fifth sternite, ♀, with a broad, shiny, sparsely punctate, transverse impression on apical two-thirds, the impression usually distinct but occasionally rather feeble.

Type locality.—Cle Elum, Washington. Truck Crop No. 4972.

Other locality.—Easton, Washington. Truck Crop No. 4865.

Type.—♂, Cat. No. 50656, U. S. N. M.

Described from 127 specimens collected by Mr. W. W. Baker and Mr. Joseph Wilcox in April and May.

At first sight the pronotum appears to be almost devoid of scales except on the median and lateral vittae, but in reality the entire surface is covered by scales which adhere so closely to the surface contours that the puncture depressions and the intervals between them are clearly visible. The seta-bearing punctures usually are dis-

tinctly smaller than the scale-bearing punctures, though occasionally the two types appear to coalesce, the setae then rising from one side of a large puncture. The metepisternal suture usually is distinct for about half its length, or less, anteriorly.

***Lepidophorus bakeri utensis* n. subsp.**

Length, 3.6–4.2 mm.; width, 1.7–2.1 mm. The description of *bakeri* applies to this form except for the following average differences: In *utensis* the size is slightly larger and the form a little more slender, the elytral striae deeper and the intervals slightly to rather strongly convex. In several specimens the lateral carinae of the rostrum are strongly elevated while the median carina is scarcely discernible, the surface between the lateral carinae thus appearing concave.

Type locality.—Alta, Utah, 6–28, Hubbard and Schwarz collection; 9 specimens, ♂ and ♀.

Type.—♀, Cat. No. 50657, U. S. N. M.

The status of several Park City, Utah, specimens, which are smaller than *utensis*, is uncertain; they may represent another feebly differentiated local form of *bakeri*.